GRC Environmental Programs Manual

Chapter 1 – Environmental Management System

NOTE: The current version of this Chapter is maintained and approved by the Environmental Management Office (EMO). The revision date for this chapter is February 2003. If you are referencing paper copies, please verify that it is the most current version before use. The current version is maintained on the Glenn Research Center intranet at http://osat-ext.grc.nasa.gov/emo/pub/epm/epm-contents.pdf Approved by: EMO Chief, Michael Blotzer {mailto: Michael.J.Blotzer@grc.nasa.gov}

1.0 GENERAL

This chapter describes the ISO 14001 compliant Environmental Management System (EMS) at NASA Glenn Research Center (GRC).

1.1 Purpose

This chapter describes GRC's Environmental Management System (EMS), which:

1. Actively involves senior management in support of the environmental management program.
2. Incorporates people, procedures, and work practices in a formal structure to ensure that the priority environmental impacts of the organization are identified and addressed.
3. Promotes continual improvement by periodically evaluating environmental performance.
4. Involves all members of the organization as appropriate.

The purpose of this EMS is to comply with and support the Agency EMS, and to establish a comprehensive approach to managing environmental activities for efficient, prioritized program execution. This document describes EMS procedures and references various documents demonstrating compliance and conformity with NPG8553.1/ISO 14001 requirements.

1.2 Scope

This Chapter provides overall direction for GRC to support the NASA commitment to environmental management. It applies to all organizational codes at GRC and related facilities. It serves as the main resource for effective implementation and maintenance of the Environmental Management System (EMS).

2.0 REFERENCES

2.1 Applicable Documents

- GLPD 8870.1B, Glenn Environmental Quality Program
- A complete listing of GRC documents applicable to EMS are listed in Appendix A, Cross Reference to GRC Documents (NPG8553.1/ISO 14001)
- Chapters of this manual included in the scope of this EMS are: 1-8, 17-22, 25-27, 31, 32, 34, 36, and 38.

2.2 Records

The EMS records are found in the Organization Records List C-278 maintained in the BMS library.

3.0 DEFINITIONS

The Code of Environmental Management Principles (CEMP)	An Environmental Protection Agency (EPA) document comprised of five principles: • Management commitment • Compliance assurance • Pollution prevention enabling systems • Performance and accountability • Measurement and improvement
Competence	Means a body of skills (training, education, and experience) defined by the organization as appropriate for all personnel whose work might create a priority environmental impact.
Consequence	Associated with an environmental impact and is the resulting potential: (adverse or beneficial) effect on, or resulting change to: • A natural or cultural resource • A cost to NASA • The mission • Reputation or stakeholder relationship • Health and safety or • Environmental legal/regulatory implication. Consequences may occur as a component of normal operations where they are an expected result of regular planned operations. An abnormal consequence is associated with an unplanned or unexpected effect or change. An emergency consequence is associated with an emergency as defined by an installation in accordance with NPG 8715.2
Continual Improvement	The process of enhancing the environmental management system to achieve improvements in overall environmental performance in line with NASA's environmental policy and mission.
Document	A written procedure or guideline that requires regular maintenance or review.
Environmental Management System (EMS)	A system that incorporates people, procedures, resources, responsibilities, and work practices in a formal structure to address the development, implementation, achievement, and review of the environmental policy.
EMS Audit	A systematic and documented verification process of objectively obtaining and evaluating evidence to determine whether an organization is conforming to its environmental management system and for communicating the results of this process to management.
EMS Representative	The NASA individual who manages the EMS and is responsible for reporting to senior management and NASA HQ Code JE: EMS performance, results of functional assessments, audits, and management reviews.
EMS Continuous Improvement Operations Manager	The NASA individual, who manages the EMS day-to-day operations, makes and implements continuous improvements to the EMS and is responsible for assisting the EMS Representative.
Environment	The surroundings in which an organization operates, including air, water, land, natural resources, flora, fauna, humans, and their interrelation.

Environmental Aspects	Elements of NASA's activities, products, or services that can interact with the environment. NASA has determined that these elements fall into four major focus areas: Prevention, Compliance, Restoration, and Conservation.
Environmental Impact	Any change to the environment, whether adverse or beneficial, wholly or partially resulting from NASA's activities, products, or services.
Environmental Policy	A statement by NASA of its intentions and principles in relation to its overall environmental performance, which provides a framework for action and for the setting of its environmental objectives and targets.
Environmental Performance	Measurable results of the environmental management system, related to NASA's control of its environmental aspects, based on its environmental policy, objectives, and targets.
Environmental Objective	An overall environmental goal, arising from the environmental policy, that NASA sets for itself to achieve, and which is quantified where practicable.
Environmental Target	Detailed performance requirement, quantified where practicable, applicable to NASA, that arises from the environmental objectives and that needs to be set and met in order to achieve those objectives.
External Communication	Any communication between GRC and external interested parties regarding environmental issues. It is meant to address inquiries from external parties comprehensively and systematically. Interested parties are individuals or groups with an interest in the environmental impacts of GRC's organization's products, activities or services. These parties include regulators, local residents, employees, stakeholders, insurers, customers, environmental groups and the general public.
Functional Assessment	Comprehensive, systematic, and documented verification, led by a headquarters team, of a functional area whereby evidence is obtained and evaluated to determine whether specific environmental activities, events, conditions, management systems, or information about these matters conforms with criteria.
ISO 14000	International standard and guidelines for environmental management tools and systems developed by the International Organization for Standardization.
Interested Party	Individual or group concerned with or affected by the environmental performance of an organization.
Legal and Other Requirements	Requirements that the organization is regulated to or has committed to meeting. These include local, State, Federal, Office of Management and Budget (OMB) circulars, Executive Orders, and international obligations (legal). They also include internal standards, agency agreements, presidential initiatives, industry codes or practice, contractual obligations, and non-regulatory guidelines.
NASA Online Directives Information System (NODIS)	Internet-based library of approved NASA directives enabling users to retrieve, view, and print NASA directives electronically.
Noncompliance	Failure to meet legal or other requirements.
Nonconformance	Failure to meet an EMS-specified requirement.
Operational Controls	Documented procedures that limit adverse impacts to the environment and are needed in order to manage NASA's environmental policy and compliance activities.

Prevention of Pollution	Use of processes, practices, materials or products that avoid, reduce or control pollution, which may include recycling, treatment, process changes, control mechanisms, efficient use of resources and material substitution.
Priority Environmental Impact	A NASA environmental impact that must be managed to avoid or prevent a serious adverse environmental effect, or create a substantial beneficial effect. Within Federal government agencies such as NASA, compliance with the National Environmental Policy Act (NEPA) requires that if "major actions" might impose "significant environmental impacts," then measures for mitigating these adverse impacts must be identified and evaluated. To avoid confusion the NASA EMS will use the term "priority" instead of "significant" when describing environmental impacts.
Record	Written or printed object that cannot be revised and provides evidence of what was done or has occurred.
EMS Record	Record that has been identified as pertaining to the EMS.

4.0 ENVIRONMENTAL MANAGEMENT SYSTEM

4.1 GENERAL REQUIREMENTS

GRC is committed to the Environmental Management System as described in the NASA Environmental Management System (EMS) Procedures Manual (NPG8553.1) and in GRC Policy Directive (GLPD 8870.1B).

4.2 NASA GRC's ENVIRONMENTAL POLICY

GRC operates in a manner that preserves and protects the environment through pollution prevention, the continual improvement of our operations, and complying with regulations.

GRC reviews its environmental policy to ensure it is current and appropriate to its activities, products and services. To ensure knowledge and implementation of this policy, GRC communicates this policy to all employees and makes it available to the public. GRC also reviews current objectives and targets to ensure consistency with this policy.

4.3 PLANNING

4.3.1 Environmental Aspects and Impacts

The procedure used to develop a list of priority environmental aspects and impacts associated with GRC activities; products and services are found in Section 3.1 of NPG8553.1. GRC follows this procedure and priority environmental aspects are considered in setting objectives and targets. All changes in GRC activities, products and services are also reviewed to determine if they have priority environmental aspects and impacts.

A Risk Matrix Example Form is shown in Appendix B and is used to capture this information. The current completed GRC Risk Matrix form is maintained in the EMO Division Office files.

4.3.2 Legal and Other Requirements

GRC subscribes to a legal/regulatory email service through NASA HQ and takes action when appropriate. Access to current copies of relevant Federal, State, local laws and regulations and NASA requirements is maintained through electronic and/or hard copies available within EMO.

This Environmental Programs Manual contains guidance on regulations applicable to GRC's environmental aspects. This guidance follows United States Environmental Protection Agency (USEPA) and the Ohio Environmental Protection Agency (OEPA) environmental laws and regulations, respectively and can be found at these websites.

EMO maintains copies of all environmental permits, licenses and agreements. EMO also reviews compliance inspection results and corrects all deficiencies, including those related to legal and other requirements. The Center also subscribes to the following other environmental requirements:

- Member, Great Lakes and Northern Forest Cooperative Ecosystem Studies Unit.

4.3.3 Objectives and Targets

The procedure for dealing with objectives and targets is summarized in Section 3.3 of NPG8553.1. It is used to identify environmental objectives and targets and environmental management programs used to achieve them. The EMS Representative and the Operations Team identifies and prioritizes objectives and targets for management review and approval. All objectives and targets are consistent with the Environmental Policy. Progress towards achieving objectives and targets is evaluated at least annually. Results are reported to management and corrective actions implemented for activities or operations not meeting targets. GRC's records which relate to objectives and targets include, but are not limited to the following:

- Risk Matrix Example Form, Appendix B
- Current Objectives and Targets

Various programs are maintained to achieve the objectives and targets, and include the Employee Suggestion Award Program, which supports achievement of the pollution prevention and resource conservation targets and objectives.

4.3.4 Environmental Management Programs

GRC has environmental management programs maintained in the Environmental Program Manual for managing its objectives and targets. An Objectives and Target Plan is developed annually which describes the objective, related targets, the individual responsible for achieving the target, associated environmental program used to achieve the target, due dates, and performance indicators.

4.4 IMPLEMENTATION AND OPERATION

4.4.1 Structure and Responsibility

The procedure GRC uses is found in section 1.2 of NPG8553.1 and in the documents listed below. Since the overall effectiveness of the EMS depends on accountability of employees at all levels, GRC assigns these roles to knowledgeable and competent individuals and commits adequate resources to ensure success. Documented EMS roles are reviewed and kept current with respect to reorganizations, departures, new hires or new requirements.

Complete detail concerning structure and responsibility are described in the following documents:

- GRC-P3.10, Safety, Environmental, Security, and Emergency Preparedness Programs.
- EMO Organizational Flow Chart
- SATD Annual Operating Agreement
- GRC-P0540.001, Environmental Management Office
- GRC-P0540.002, Programs and Processes

The EMS roles, responsibilities or functions are described below**:**

Center Director

- Assigns roles and responsibilities for the Center's EMS Representative.
- Provides the authority needed for the EMS Center Representative to implement and maintain GRC's EMS.
- Provides resources for the effective operations and maintenance of the EMS.
- Reviews Environmental Pollution Control Board minutes, directing any concerns or questions on the EPCB's management review of EMS suitability, adequacy, and effectiveness to the Chair, EPCB.

Center Directorates

- Through the Environmental Pollution Control Board (EPCB), reviews EMS periodically for status and viability.

Director, of Safety and Assurance Technologies (SATD)

- Assigns roles and responsibilities for the Chief of the Environmental Management Office.
- Advocates for resources for the effective operation and maintenance of the EMS.

Environmental Pollution Control Board (EPCB)

- Establishes environmental policies for GRC.
- Serves as an appeal for unresolved questions pertaining to the quality of GRC operations, reviews, evaluates, and resolves disputes.
- Ensures that information about existing or potential environmental problems be made available to all appropriate GRC employees and levels of GRC management.
- Meets quarterly or as necessary.
- Establishes and reviews environmental objectives and targets.
- Conducts management review of the EMS.

Chief, Environmental Management Office

- Serves as EMS Representative and is the GRC Environmental Manager.
- Requests resources for the effective operation and maintenance of the EMS.
- Researches and responds to environmental communications from the media and public, with the concurrence of the External Programs Directorate (EPD).
- Receives and responds to all communications from regulators, keeping EPD informed of the responses.

External Programs Directorate

- Receives all communication from the media and the public.
- Directs environmental questions and comments to the Environmental Management Office.

EMS Representative

- Documents and communicates roles, responsibilities, and authorities to facilitate effective implementation of the EMS.
- Requests resources for the effective operation and maintenance of the EMS.
- Exercises the authority necessary to implement and maintain the EMS.
- Establishes, implements, and maintains EMS requirements.
- Periodically assesses, reviews, and reports on the condition of the EMS.
- Reports to the EPCB on the results of audits, status and viability of the EMS.
- Reviews and updates (as necessary) objectives and targets. Where it was decided not to set objectives and targets to address high priority impacts a review of technical and economic feasibility will be completed.

EMS Continuous Improvement Operations Manager

- Assists EMS Representative.
- Assists in the effective implementation of the EMS.
- Manages resources for the effective operation and maintenance of the EMS.
- Exercises the authority necessary to implement and maintain the EMS.
- Assists in the facilitation of the EMS and coordination with BMS and ISO 9000.
- Assists in establishing, implementing, and maintaining EMS requirements.

Environmental Management Office Team Leaders

- Assist in the effective implementation of the GRC's EMS.
- Suggest resources for the effective operation and maintenance of the EMS.
- Exercise the authority necessary to implement and maintain the EMS.
- Assist in the facilitation of the EMS.
- Assist in establishing, implementing, and maintaining EMS requirements.

Environmental Program Manual Chapter Leads

- Conduct an annual review of applicable programs and chapters.
- Insure continuous improvement of programs.
- Maintain appropriate records.

Safety, Health, Environmental, and Security Training Committee

- Gathers input from all interested parties.
- Develops the environmental training plan for the center, in consultation with EMO.
- Provides input and feedback to Chief, Team Leads, and EMS Representatives.
- Maintains appropriate documents and records.
- Stays current on new regulatory training requirements in area of representation.

All Managers

- Provide resources to support EMS activities.
- Ensure staff with EMS responsibilities is trained, aware and competent.

All Employees and Contractors

- Understand the environmental aspects of their operation.
- Attend necessary training.
- Follow applicable procedures.
- Support other EMS activities.

Responsibility

Responsible Person or Organization	Activity
Center Director	Provides Senior Management oversight.
Director, Office of Safety and Assurance Technologies	Provides Senior Management oversight. EMS Senior Manager for management review.
Environmental Pollution Control Board	Sets environmental policies and leads management review. Serves as GRC's EMS Core Team.
Chief, Environmental Management Office	GRC Environmental Manager.
EMS Representative	GRC's EMS Lead. Coordinates with NASA HQ EMS Project Office.
EMS Continuous Improvement Operations Manager	Assists GRC's EMS Lead with EMS, BMS, and continuous improvement. Coordinates events and serves as Team Leader interface to ensure timely input. Assists in coordination with ISO 9000 Project Office. Assists with EMS audits. Oversees EMS\BMS interaction.
Environmental Management Office Team Leads	Provide input and assist in the EMS. Adopt EMS in normal business practices and supports the EMS lead and EMS Continuous Improvement Operations Manager.
Safety, Health, Environmental, & Security Training Committee	Lead role in interfacing with Training Office to ensure safety, environmental and security training is available to meet quality and EMS requirement.
ISO Project Office	Manages the development and implementation of the Center's Business Management Systems (BMS) and the ISO 9000 certification efforts.
All Managers and Employees	Follow appropriate procedures and work instructions for EMS.
NASA HQ EMS Representative	Develops EMS guidance and implementation at NASA HQ.

4.4.2 Training, Awareness, Competence and Environmental Awards

Training, Awareness and Competence

GRC management established a Safety, Health, Environmental, and Security Training Committee that follows GRC-P3.3.1, Training and Career Development.
Management and employees develop individual training and development plans.
The following documents provide additional information on training, awareness, and competence:

- GRC-P3.3.1, Training and Career Development.
- This Manual and Individual Development Plans.
- GRC-P3.3.1.1, On-the-Job Training Documentation.

In order to determine and track training needs the employee's supervisor will complete a training questionnaire. The completed form will be sent to the Safety and Environmental Offices for input into a training requirement and tracking system. Based upon needs identified the supervisor and employee will be notified concerning appropriate environmental, health and safety classes. The actual training an employee has completed will be tracked in the Human Resource Information System (HRIS) Database according to GRC-P3.3.1. The tracking system will include several items such as course title, completion date, and refresher course date, if applicable.

Environmental Awards

The environmental award portion of the Employee Suggestion Program (ESP)/Employee Suggestion Award Program (ESAP) encourages everyone at GRC to do their part to minimize negative impacts to the environment. The environmental award portion will be administered through the Office of Human Resources (OHR) and EMO. Individuals and teams should submit and implement pollution prevention and resource conservation ideas. Everyone who submits an eligible suggestion or idea that reduces negative impacts to the environment will receive a gift from EMO and a $5.00 certificate from OHR. Higher value awards may be given to individuals or teams at GRC who also implement their ideas that reduce negative impacts to the environment.

Goals and Benefits of the Environmental Award Portion of the ESP/ESAP

1. Reduce negative impacts to one or more of the following: environment, cost, NASA mission, reputation, safety and regulatory compliance.
2. Facilitate achievement of GRC's environmental objectives and targets.
3. Encourage involvement in EMS activities.
4. Provide positive recognition for environmentally beneficial ideas and concepts.
5. Increase environmental awareness and communication at GRC.

Environmental Award Categories

1. Potential Opportunity Award **-** For ideas submitted which could help reduce negative impacts to the environment:
   a. EMO Provided Award - Recognition gift.
   b. OHR Provided Award - Certificate worth $5 toward purchase in Exchange Store or Cafeteria.
2. Environmental Improvement Award **–** Monetary award for ideas or suggestions implemented.
3. Environmental Improvement of the Year Award - One winner at GRC/year.

Environmental Award Evaluation Criteria

All suggestions and ideas will be evaluated to determine the potential to improve environmental performance in the following areas:

- Natural and cultural resources/environment
- Cost
- Mission
- Reputation and stakeholder relationships
- Compliance with regulations

Environmental Award Process

1. EMO communicates details of the new environmental portion of the ESAP program.
2. Individuals or teams send in Form C-9034 to OHR who will record and forward environmental ideas to EMO.
3. EMO will review the environmental ideas and will notify OHR which ideas will be implemented.
4. EMO will work with the individual, their supervisor and other relevant parties to help implement the idea.
5. Within one year after implementation, the individuals or teams will submit a report to EMO on their implementation progress, success, or lack of success.
6. The EPCB will select the Environmental Improvement of the Year Award and work with OHR and the Center Director to publicize and present.

4.4.3 Communications

GRC has developed internal and external communications procedures for meeting the GRC's EMS needs. These procedures are implemented and documented to ensure prompt responses to internal and external inquiries.

Internal Communications Process

PURPOSE

GRC's priority environmental aspects, environmental objectives and targets, and the environmental management system (EMS) are communicated to GRC personnel through the following media as appropriate.

PROCEDURE

The traditional flow of information from one management level to the next is appropriate and will be used for certain environmental information. The managers will instruct their employees to follow published procedures for specific applicable activities.

- Internal Newsletters
- Videos
- E-mail, Posters and Bulletins
- Employee Suggestion Program and Employee Help Line (3-8848 for environmental assistance and concerns)
- Special Events including the annual Earth Day Celebration program and periodic safety, health, and environmental promotions

External Communications Process

PURPOSE

This process is designed to promote communication of environmental issues to external stakeholders and to receive, consider and respond to inquiries from the public, media and other outside agencies.

PROCEDURE

General Public Communications

GRC has decided not to publicize the Center's environmental aspects. The Center will respond to public inquiries or requests on a case-by-case basis. The External Programs Directorate is the focal point for coordinating responses to all public inquiries. EMO will coordinate its response with the External Programs Directorate. All contacts will be documented to include the identity of the contact, the date and nature of the inquiry, and a summary and date of the response.

EMO will coordinate all contacts by the media with the External Programs Directorate. Both the EPD and the EMO will determine who should respond to the inquiry.

4.4.4. Environmental Management System Documentation

The documents that describe the GRC's EMS are NPG8553.1, GLPD 8870.1B and this Manual. These EMS related documents are kept current through annual or more frequent revisions, as needed.
All managers and employees will follow these documents:

- GRC-P3.7.2, Business Management System (BMS) Document Control and Data Control.
- GRC-P3.7.2,1 Creation and Revision of the Quality Manual, Center Level Procedures, Lower Level Procedures, Work Instructions and Forms
- GLPD 1420.1A, Forms Management Program

For a complete listing of environmental management system documentation, records see Appendix A, Cross Reference to GRC Documents (NPG8553.1/ISO 14001) and the Organization Records List C-278 in the BMS library.

4.4.5 Document Control

The documents referred to in this chapter constitute the GRC procedures for EMS documentation and document control. GRC follows these procedures, reviews and updates them at least annually. Controlled copies of the documents may be in electronic form or in hard copies. In either case, these documents are made available to employees and others who may need them to carry out their EMS duties. Obsolete copies of controlled documents are removed from circulation immediately.

4.4.6 Operational Control

The EMS Representative and EMO staff verifies that operational control procedures are being followed. This verification is achieved through visual observation of EMS activities, interviewing employees implementing EMS and reviewing EMS records. The operational control procedures are designed to address all activities, products and services that result in priority environmental impacts. GRC revises these procedures at least annually.

For specific operational control documents, see Appendix A, Cross Reference to GRC Documents (NPG8553.1/ISO 14001).

4.4.7 Emergency Preparedness and Response

GRC uses the procedure noted below to prepare and respond to emergencies associated with its normal or abnormal operations. These procedures are kept current through updates following each major incident involving procedure implementation. The emergency preparedness and response procedures and plans at GRC can readily identify, prevent and mitigate EMS emergencies.

All managers and employees will follow these procedures. For specific emergency preparedness and response topics, see GRC-P3.10 Safety, Environmental, Security and Emergency Preparedness Program.

4.5 CHECKING AND CORRECTIVE ACTION

4.5.1 Monitoring and Measurement

All monitoring and measurement requirements are defined in individual EPM chapters and in environmental permits. All monitoring equipment is maintained and calibrated in accordance with GRC-P3.11.1, *Control of Inspection, Measuring, and Test Equipment*.

The monitoring and measurement methods are designed to be:

- Simple, flexible, and effective in producing reliable data.

- Supportive in yielding objective and verifiable environmental performance indicators consistent with GRC policies.
- Communicated to EMO, staff and stakeholders.

4.5.2 Nonconformance, Corrective and Preventive Action

The nonconformance, corrective and preventive action procedure GRC uses is referenced in the documents listed below. The EMS Representative and EMO staff ensures the implementation and maintenance of these procedures and track all non-conformances through corrective actions. Records generated are kept according to GRC policy.

For specific Nonconformance, Corrective and Preventive Action topics see GRC-P4.7, Corrective and Preventive Action.

4.5.3 Records

GRC uses procedures described in Section 5.3 of NPG8553.1 and those listed below to manage its EMS records. The EMS Representative and EMO staff are responsible for making sure that these procedures are followed and they review EMS records at least annually to ensure they are legible, complete and traceable to a specific activity, product or service. The record retention procedure follows GRC policy as stated throughout GRC 3.7.3 Records Management.

4.5.4 Environmental Management System Audit

The Environmental Management System Audit program consists of the NASA HQ Environmental Functional Review described in NPG8553.1 as well as local internal audits performed according to the procedures described below. EMS audits are conducted according to the schedule and non-conformances noted are managed through the nonconformance, corrective and preventive action specified in Section 4.5.2 above. The process below is applicable to all internal audits performed by the EMS auditors to verify compliance to requirements and to verify the effective implementation of the GRC quality system and environmental management systems.

1. The EMS auditors will develop a schedule for the internal audit at least one month in advance.
2. Previous audit findings will be considered in developing the audit scope and focus. The EMS auditors will use an EMS Audit Matrix to determine the scope of an audit and the audit checklist in conducting audit (see Appendix C for examples).
3. The auditors will provide a summary report to appropriate managers.
4. The appropriate managers will fill out Corrective and Preventive Action Report Forms.
5. The Forms will be processed through the Corrective and Preventive Action process described in 4.5.2 of this chapter.

Auditor Qualifications

1. All auditors shall have successfully completed an ISO 14001 auditor training class.
2. Prior to participating in an audit, all auditors shall observe at least one audit.
3. Auditors will be independent of the organization, project, or process they are auditing.
4. Auditors will be free from bias and influences which could affect objectivity.

Records:

- EMS Audit Report
- Completed EMS Audit Matrix

Environmental Management System compliance is confirmed through the following routine audits and inspections:

- NASA HQ Functional Assessment.
- ISO 14001/NPG8553.1/EMS Internal Audits.

4.6 Management Review

A management review is done annually by the EPCB in accordance with Chapter 6 of NPG8553.1. The management review includes:

- The status and viability of the EMS.
- Results of environmental and EMS audits.
- Reviewing and updating objectives and targets as appropriate.

- Reviewing decisions to not set objectives and targets for high priority impacts for technical or economic reasons.

Metrics

Metrics are established for GRC's objectives and targets to ensure the EMS is properly implemented and maintained.

See Chapter 7 of NPG8553.1 for additional information on Agency-wide EMS metrics.

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Objectives and Targets Plan for NASA Glenn Research Center FY 2003

Approved by the Environmental Pollution Control Board May 7, 2003

Objective	Targets	Assigned To	Program	Date Due	Performance Indicators & Metrics
Reduce the likelihood of spills and releases.	Train personnel handling hazardous chemicals, waste, and petroleum products in spill prevention procedures. Control or cleanup all spills within 24 hours.	Priscilla Mobley	EPM Chap 8, 23, 24, 27, 38	9/30/2003 Within 24 hours.	Percentage of personnel meeting HAZCOM, RCRA, SPCC, and Tank Manager training requirements. Number of spills and releases and number controlled or cleaned up within 24 hours.
Identify and implement pollution prevention activities	Identify and implement substitutes for MEK in 3 applications (LF) Develop Environmentally Preferred Program and Products Lists 7 application categories. Develop Life Cycle Analysis program. Replace 1,1,1 trichloroethane, toluene, xylene, and acetone in machining fluids. (LF) Replace iridite at Hangar. (LF) Install garnet recycling system in Fabrication Shop. (LF) Complete biodiesel study. Complete methane towmotor study. (LF) Study tyvek recycling. (LF) Field test Real Time Monitoring System. Complete Chemical Management PDA pilot project.	W. Kocher Linda Sekura W. Kocher W. Kocher W. Kocher W. Kocher T. Strauser M. Hovanik P. Kennedy W. Kocher W. Muscolo	EPM Chap 6 CLP CLP EPM Chap 6 EPM Chap 6 EPM Chap 6 EPM Chap 6 EPM Chap 6 EPM Chap 6 EPM Chap 6 EPM Chap 6	9/30/2003	Number of MEK applications eliminated. Completed and published Environmentally Preferred Products list. Published program. Number of fluids replaced. Iridite replaced. Successful implementation. Report issued. Report issued. Report issued. Report issued. Report issued

	Identify the feasibility of replacing 1,1,1 Trichloroethane in the PBS clean room. (PB)	R Lallier	EPM Chap 6		Issue Report
Comply with all regulatory requirements.	Correct or develop corrective action plan for all regulatory items of non-compliance within 3 months.	Michael Blotzer	CPAR GRC-P4.7	Within 3 months of identifying violation	Number non-compliances. Percentage of non-compliances corrected or with corrective action plans within 3 months.
Reduce solid waste generation	Develop tracking system for construction waste and integrate into waste management program. Recycle or reuse construction solid waste as much as practicable.	Michael Bajorek	EPM Chap 5, 34	9/30/2003	Completed and published construction waste manifest process. Percentage of construction waste reused or recycled.
Exercise responsible stewardship for MASA controlled natural resources	Update Species Management Plan Annual field burn Reduction of deer	R. Lallier R. Lallier Amy Bower	PBS Species Management Plan (2002)	10/01/2003 Annually Annually	Plan updated % of acres controlled by burns % of target cull rate